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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,872	08/18/2003	Shen Buswell	10015382-4	3676

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EXAMINER

ALANKO, ANITA KAREN

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 01/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/642,872

Applicant(s)

BUSWELL ET AL.

Examiner

Anita K. Alanko

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/6/05 election.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 17-25 is/are pending in the application.
4a) Of the above claim(s) 9 and 13 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-8, 10-12, 14, 15 and 17-25 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

Applicant's election without traverse of the method in the reply filed on 10/6/05 is acknowledged.

Applicant's election of species A in the reply filed on June 20, 2005 is acknowledged. Since claim 16 was canceled and claim 18 rewritten, all of the claims read on species A.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

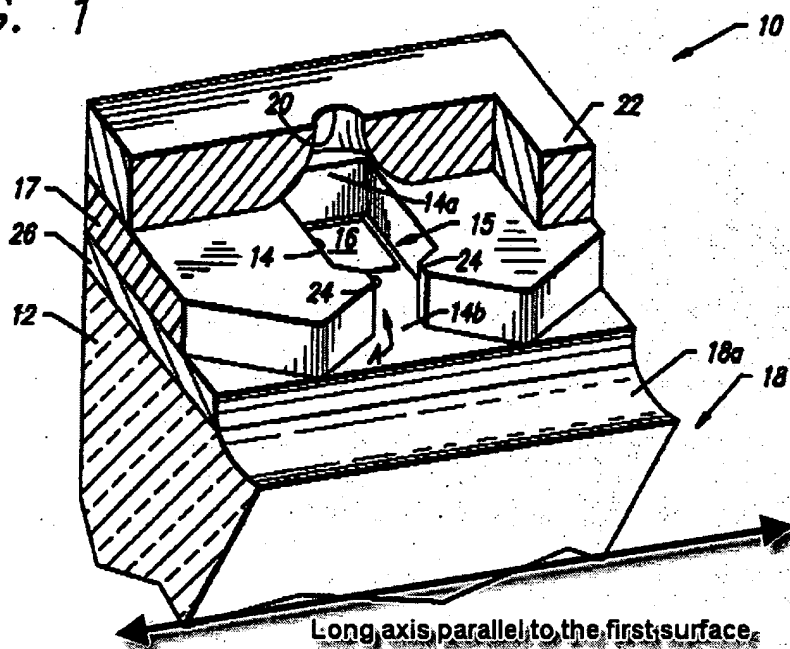
Claims 1-3, 6-7 and 10-12, 14, 17-25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Baughman et al (US 5,441,593).

Baughman discloses a method comprising:

forming a slot 18 into a substrate 12, the slot extending along a long axis and being defined, at least in part, by a pair of sidewalls 18' which extend generally parallel to the long axis (Fig.5A); and,

forming at least one bowl-shape 18a into the substrate so that the long axis passes therethrough, the bowl shape being connected to the pair of sidewalls of the slot and defining, at least in part, a terminal region of the slot (Fig.5C).

As to amended claims 1 and 10, Baughman discloses that the slot extends between a first substrate surface and a generally opposing second substrate surface (the top and bottom surfaces, Figure 5C) and that the slot extends along a long axis that extends generally parallel to the first substrate surface (the long axis is not shown in Figure 5C, but rather extends into and out of the page; Figures 1-3 show the long axis).

FIG. 1

As to claim 2, Baughman discloses forming the bowl shape into a first surface 12a of the substrate, wherein the width at the first surface is greater than a width between the sidewalls (Fig. 5C).

As to claim 3, Baughman discloses to etch (col. 6, lines 34-39).

As to claims 6-7, 10-12, Baughman discloses that the sidewalls are orthogonal to the first surface, and that the sidewalls blend into the surface (no sharp corners are present).

Further, as to claims 14, 18 and 20, Baughman discloses that the central region is narrower (defined by sidewalls 18) than the two wider terminal regions (two regions defined by two sidewalls 18a, wider than the central region since region 18a it is larger than the central region 18' Fig.5C; or alternatively Fig.6C with rounded regions wider at both the top and bottom surfaces of substrate 12 than the central region). Stress concentrations are inherently reduced since the slot is rounded and does not comprise sharp corners. Rounding is shown in Figures 5C and 6C.

Claims 1-4, 6-7, 10-12, 14-18, 20-25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Soik et al (US 6,745,469 B1).

Soik discloses a method comprising:

forming a slot 308 into a substrate 302, the slot extending along a long axis and being defined, at least in part, by a pair of sidewalls 400 which extend generally parallel to the long axis (Fig.21; Fig.14, 22-16 also show sidewalls generally parallel to the long axis); and,

forming at least one bowl-shape 310 into the substrate so that the long axis passes therethrough, the bowl shape being connected to the pair of sidewalls of the slot and defining, at least in part, a terminal region of the slot (Fig.14, 21).

As to amended claim 1, Soik discloses that the slot extends between a first substrate surface and a generally opposing second substrate surface (the top and bottom surfaces of the substrate) and along a long axis which lies generally parallel to the first substrate surface (not shown in Figure 21 since it extends into and out of the page).

As to claim 2, Soik discloses forming the bowl shape into a first surface 304 of the substrate, wherein the width at the first surface is greater than a width between the sidewalls (Fig.21).

As to claims 3-4, Soik discloses to use a drill bit (col.10, line 51), laser machining, etching or a method of mechanically removing (col.14, lines 38-42).

As to amended claim 20, as broadly interpreted, Soik discloses the same relative dimensions since as cited since the slot has a central region and wider terminal regions.

Figures 12-13, 15-20 disclose various blending or rounding methods for forming the slot.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10-12, 14-15, 17-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soik et al (US 6,745,469 B1).

The discussion of Soik from above is repeated here.

As to claims 5 and 8, Soik does not disclose a required order of the process steps. The performance of two steps simultaneously, which have previously been performed in sequence was held to have been obvious. *In re Tatincloux* 108 USPQ 125 (CCPA 1955). It would have been obvious to one with ordinary skill in the art to conduct the steps as cited, since the same end product occurs, and conducting them concurrently saves time, and conducting them in a

particular order allows for optimizing the processes for best results used to form each opening when the processes are different.

Response to Arguments

Applicant's arguments filed 2/24/04 have been fully considered but they are not persuasive. Applicant argues that the limitations are not disclosed. However, Baughman does not depict in Figures 5-6 the long axis parallel to the first surface. This is shown in, for example, Figure 1, where it can be seen that the slot terminates in a bowl region which is wider (at the first surface) than the central region (at the first surface if the parallel sidewalls were extended up to reach the first surface). Rounding is also shown in Soik since sharp corners are not present, but rather rounded corners (see Figures 12-13, 15-20).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K. Alanko whose telephone number is 571-272-1458. The examiner can normally be reached on Mon-Fri until 2:30 pm (Wed until 11:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1765

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anita K. Alanko

Anita K Alanko
Primary Examiner
Art Unit 1765